DATA TRACKING AND TECHNICAL FACT SHEET

Permittee: Norfolk Sewer District

PERMIT, ADDRESS, AND FACILITY DATA

PERMIT #: x **APPLICATION #:** x **FACILITY ID.** x

Mailing Address:	Location Address:
Street: 259 Greenwoods Rd, West (Route 44)	Street: Same as mailing address
City: Norfolk ST: CT Zip: 06058	City: ST: CT Zip:
Contact Name: John Zucco, Superintendant	Contact Name: John Zucco/Bill Hester
Phone No.: 860-542-5647	Phone No.: 860-542-5647
	DMR Contact email address: norfolksewerdist@sbcglobal.net

PERMIT INFORMATION

DURATION 5 YEAR _X_ 10 YEAR ___ 30 YEAR ___

TYPE New _ Reissuance **X** Modification ___

CATEGORIZATION POINT (X) NON-POINT ( ) GIS #

NPDES (X) PRETREAT () GROUND WATER(UIC) ( ) GROUND WATER (OTHER) ( )

NPDES MAJOR**(MA)** ___
NPDES SIGNIFICANT MINOR or PRETREAT SIU **(SI)** ___
NPDES or PRETREATMENT MINOR **(MI)** X

COMPLIANCE SCHEDULE YES X NO___
POLLUTION PREVENTION ___ TREATMENT REQUIREMENT
WATER QUALITY REQUIREMENT **X** OTHER ___

OWNERSHIP CODE
Private ___ Federal ___ State ___ Municipal (town only) X Other public___

DEP STAFF ENGINEER Carlos Esguerra **DATE DRAFTED:6/8/15**

PERMIT FEES

Discharge Code	DSN Number	Annual Fee
111000**c**	001	$1,722.50

FOR NPDES DISCHARGES
Drainage Basin Code: Water Quality Classification Goal: **B** Segment: Blackberry River-6100

NATURE OF BUSINESS GENERATING DISCHARGE
Municipal Sanitary Sewage Treatment

PROCESS AND TREATMENT DESCRIPTION (by DSN)
Secondary treatment with sand filtration and seasonal chlorination and de-chlorination.

RESOURCES USED TO DRAFT PERMIT

__ *Federal Effluent Limitation Guideline 40CFR 133 Secondary Treatment Category*

__ *Performance Standards*

__ *Federal Development Document*
name of category

__ *Department File Information*

_X_ *Connecticut Water Quality Standards*

_X_ *Anti-degradation Policy*

__ *Coastal Management Consistency Review Form*

_X_ *Other – Explain: Inspection reports*

BASIS FOR LIMITATIONS, STANDARDS OR CONDITIONS

_X_ *Secondary Treatment (Section 22a-430-4(r) of the Regulations of Connecticut State Agencies)*

__ *Case-by-Case Determination (See Other Comments)*

_X_ *In order to meet in-stream water quality (See General Comments)*

__ *Anti-degradation policy*

GENERAL COMMENTS

The Norfolk Sewer District ("the District") operates a municipal water pollution control facility ("the facility") located at 259 Greenwoods Rd in Norfolk. *The facility is designed to treat and discharge up to* ***0.35*** *million gallons a day of effluent into the Blackberry River. The facility currently uses secondary treatment with sand filtration and seasonal chlorine disinfection to treat effluent before being discharged. Pursuant to Conn. Gen. Stat. § 22a-430, the Department of Energy and Environmental Protection has issued the District a permit for the discharge from this facility. The District has submitted an application to renew its permit. The Department has made a tentative determination to approve the District's application and has prepared a draft permit consistent with that determination.*

The most significant changes from the current permit are the inclusion of a Copper loading limit, a seasonal phosphorus load cap, revised bacteria monitoring requirements (e.g. e. coli), aluminum monitoring to be consistent with the most recent CT Water Quality Standards, and Iron monitoring to be consistent with EPA's National Recommended Water Quality Criteria.

Historically, flows reaching the District's POTW exceed on a regular basis the permitted capacity of the plant (i.e. 0.35 MGD). This is due to excessive infiltration/inflow entering the District's wastewater collection. For this reason, DEEP issued order No. AO-WR-MU-11-001 on May 5, 2011 to require the District to address this issue.

SPECIFIC REQUIREMENTS OR REVISIONS

The Department reviewed the application for consistency with Connecticut's Water Quality Standards and determined that with the limits in the draft permit, including those discussed below, that the draft permit is consistent with maintenance and protection of water quality in accordance with the Tier I Anti-degradation Evaluation and Implementation Review provisions of such Standards.

The need for inclusion of water quality based discharge limitations in this permit was evaluated consistent with Connecticut Water Quality Standards and criteria, pursuant to 40 CFR 122.44(d). Discharge monitoring data was evaluated for consistency with the available aquatic life criteria (acute and chronic) and human health (fish consumption only) criteria, considering the zone of influence allocated to the facility where appropriate. In addition

to this review, the statistical procedures outlined in the EPA Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001) were employed to calculate the need for such limits. Comparison of the attached monitoring data and its inherent variability with the calculated water quality based limits indicates a ***statistical*** *probability of exceeding such limits. Therefore, water quality based limits for copper were included in the permit at this time.*

A limit has been included in this permit to cap the phosphorus load this discharge is permitted for:

Phosphorus Permitting Approach
Phosphorus is a naturally occurring element that is essential to support plant growth. When present in excessive amounts, phosphorus can impair both aquatic life and recreational use of Connecticut's water resources. Excess nutrient enrichment is a serious threat to water quality in Connecticut. Excessive loading of phosphorus to surface waters as a result of discharges from wastewater treatment plants or non-point sources such as runoff from urban and agricultural lands, can lead to algal blooms, including blooms of noxious blue green algae, reduction in water clarity, and in extreme cases depletion of oxygen, fish kills, and other impairments to aquatic life. Currently, 21 water body segments have been identified on Connecticut's List of Waters Not Meeting Water Quality Standards where nutrient enrichment is a contributing cause of the impairment.

The Connecticut Water Quality Standards (WQS) do not include numeric criteria for nutrients but rather incorporate narrative standards and criteria for nutrients. These narrative policy statements direct the Connecticut Department of Environmental Protection to impose discharge limitations or other reasonable controls on point and non-point sources to support maintenance or attainment of designated uses. In the absence of numeric criteria for phosphorus, the Department has developed an interim nutrient management strategy for freshwater non-tidal streams based on the narrative policy statements in the WQS to meet the pressing need to issue NPDES permits and be protective of the environment. The strategy includes methods that focus on phosphorus because it is the primary limiting nutrient in freshwater systems. These methods were approved by the United States Environmental Protection (EPA) in their letter dated October 26, 2010 as an interim strategy to establish water quality based phosphorus limits in non-tidal freshwater for industrial and municipal water pollution control facilities (WPCFs) national pollutant discharge elimination system (NPDES) permits.

The method in the interim strategy uses best available science to identify phosphorus enrichment levels in waste receiving rivers and streams that adequately support aquatic life uses. The methodology focuses on algal communities as the key aquatic life nutrient response variable and phosphorus enrichment factors that represent significant changes in communities based on data collected statewide. Ongoing work is currently being conducted to refine the approach through additional data collection and by expanding the methodology to include non-waste receiving streams. It is expected that the ongoing work will lead to numeric nutrient criteria for all freshwater rivers and streams in the next WQS review cycle. The current approach provides for a major statewide advancement in the level of phosphorus control that is expected to meet all freshwater designated uses. The adaptive nature of Connecticut's strategy allows for revisions to permit limits in future permit cycles without delaying action that we know needs to be taken today.

The current approach follows a watershed based framework incorporating many of the elements from the U.S. EPA Watershed –Based National Pollutant Discharge Elimination System (NPDES) Permitting Technical Guidance (2007). Consistent with the 2007 Guidance, the approach "explicitly considers the impact of multiple pollutant sources and stressors, including nonpoint source contributions, when developing point source permits". Expected current conditions are based on the probability of excess phosphorus export from land cover and municipal and industrial facilities in the upstream drainage basin. Connecticut's policy for phosphorus management is translated into a numeric expression through geo-spatial and statistical analyses that determines the maximum acceptable seasonal phosphorus mass load per unit area of watershed contributing flow to the point of assessment.

The goal of the interim strategy is to achieve or maintain an enrichment factor (EF) of 8.4 or below throughout a watershed. An EF is representative of the amount of anthropogenic phosphorus loading to river and streams. It is calculated by dividing the current total seasonal phosphorus load by a modeled total phosphorus load under complete forested conditions at a particular point along the river. An enrichment factor is representative of the amount of anthropogenic phosphorus loading to rivers and streams. The goal of an 8.4 enrichment factor

represents a threshold at which a significant change is seen in the algal communities indicating highly enriched conditions and impacts to aquatic life uses.

The analysis was conducted using benthic algae collected in rivers and streams throughout CT under varying enrichment conditions. The approach targets the critical 'growing' season (April through October) when phosphorus is more likely to be taken up by sediment and biomass because of low flow and warmer conditions. During winter months aquatic plants are dormant and flows are higher providing constant flushing of phosphorus through aquatic systems with a less likely chance that it will settle out into the sediment. Limiting the phosphorus export from industrial and municipal facilities offers a targeted management strategy for achieving aquatic life designated uses within a waterbody. The export of some phosphorus from facilities and other land sources is considered normal use of the land recognizing that humans are part of the environment.

A seasonal load was established by the Department for each facility discharging to non-tidal waters based on the current degree of enrichment of the receiving water body at the point of discharge and the facilities contribution to the total watershed enrichment at the point of discharge.

Norfolk Sewer District Permit Requirements
A nutrient watershed analysis was conducted for the watershed below facilities discharging phosphorus into the Blackberry River. The facilities discharging to the Blackberry River include: Norfolk WPCF and Canaan Fire District WPCF. The current enrichment factor at the Norfolk Sewer District WPCF discharge is 7.2 which is below the seasonal (April 1st through October 31st) nutrient enrichment factor of 8.4. The final proposed seasonal load allocation for this facility is 3.45 lbs/day.

Federal regulations at 40 CFR 122.44(d) indicate that permit issuers are required to determine whether a given point source discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard after consideration of existing controls on point and non-point sources of pollution. If a discharge is found to cause an excursion of a numeric or narrative state water quality criterion, NPDES regulations implementing section 301(b)(1)(C) of the Clean Water Act provide that a permit must contain effluent limits as necessary to achieve state water quality standards. The limit in the permit and the strategy are consistent with the narrative policy statements in the CT WQS and are expected to result in the attainment and maintenance of all designated uses for the water body when the strategy is fully implemented. If the Department develops numeric criteria in the future, or it is found that the current limit under the strategy is not sufficient to achieve designated uses, the goal will be modified and the WPCF will be expected to meet the more stringent water quality goal.

WATER QUALITY LIMIT CALCULATIONS
See attached